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Analytical Method for Estimation of Losartan by using UV - Spectrophotometer

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Abstract- A simple, accurate, and economical least time consuming method for losartan method has been developed using Uv spectrophotometer. The assay is based on the UV absorbance maxima at about wavelength of 234nm using distilled water as solvent. Six sample of drug were dissolved in distilled water to produce solutions containing different brands of losartan. The absorbance of these six drugs were measured at 234 nm against the solvent blank and the assay were calculated by using the absorbance of active. This method can be used for the quality control QC quantitation and analysis of losartan in active and tablet formulations.

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I. INTRODUCTION

Losartan (fig 1) is a phenyl tetrazole substituted imidazole compound and it is a angiotensin II receptor blocker (ARB II) type I antagonist and it is used in the treatment of hypertension. Administration of Losartan results in a decrease TPR total peripheral resistance and cardiac venous return.

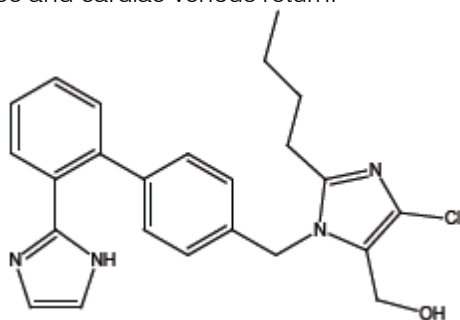


Figure 1 : Structure of Losartan

In literature, several methods have been described for analysis of Losartan potassium in API and formulations. Various methods are HPLC based [1,2], (CE) capillary electrophoresis [3], voltametric determination [4] and some are spectrophotometric [5-7].

But there is no single analytical method have been reported for determination of losartan as simple and economical like this method. Because I have used simple water for analysis of these all brands and in very less time period I have analysed the drugs. We have done this types of assay for other drugs which will be useful for small scale laboratory and where expensive

instrument not available we can easily find out these drugs in a very short period of time.

II. EXPERIMENTAL

a) Instrumentation

UV visible spectrophotometer (1601), Shimadzu double beam was used to analysis of spectra. The water is used as a solvent for active and formulations.

b) Wavelength Selection

About 100 ppm of losartan active solution was prepared in water. This solutions scanned in 200-400 nm UV region. The highest wavelength (λ_{max}) was observed at 234 nm and therefor this wavelength was used for analysis of samples.

c) Standard solution of losartan

Accurately weighed 10 mg of losartan was transferred to a volumetric flask and add distilled water to produce 100 ml. the conc of solution is 100 ppm in 100 ml.

d) Sample Preparation of different brands

The six different brands AZA, COZAAR, LOSAAN, ZOSTAT, LOSARK and EZIDAY purchased from different pharmacies in Karachi, Pakistan. All tablets of each brand have same batch number and were labeled to contain losartan 50 mg. All the six brands have 5 year shelf life.

The serial number as an identification of purchased brands are given in Table 1. Using 20 tablets of six different brand of losartan from the marketed sample were weighed and average mean were calculated. By calculating the average weighed powder of each brand equivalent to 10 mg of losartan was transferred in a volumetric flask containing small water then solution was sonicated for about 5 min and then make up volume upto 100 ml with water. Same procedure was repeat for all brands for preparation of solutions.

e) Procedure

After preparation of standard and sample solutions of different brands, strength of all solutions 100 ppm in 100 ml. By using 234 nm wavelength absorbance noted and calculate % assay of each drug.

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III. RESULTS AND DISCUSSIONS

Pharmaceutical assay was carried out by using spectrophotometer on six brands of losartan tablets. Table-1 shows brand name, code, average weight of tablets, amount for 100 ppm required and % assay of all six brands.

Results shows in figure 2 and table 1. The percentage of AZA is found 101.0385%, for cozaar, losaan, zostat, losark, eziday 102.8077, 102.0385, 101.8077, 101.5 and 102.8846 respectively. The results shows that all drugs has percentages within the limit of USp/BP.

Table 1 : Assay of losartan

| Brand Name | Code | Average wt of tablet mg | Wt for 100 ppm | Absorbance at 234 nm | % assay |
|------------|------|-------------------------|----------------|----------------------|----------|
| AZA | LSR1 | 0.16 | 0.016 | 2.627 | 101.0385 |
| cozaar | LSR2 | 0.156 | 0.015 | 2.673 | 102.8077 |
| losaan | LSR3 | 0.153 | 0.015 | 2.653 | 102.0385 |
| zostat | LSR4 | 0.18 | 0.018 | 2.647 | 101.8077 |
| losark | LSR5 | 0.234 | 0.023 | 2.639 | 101.5 |
| eziday | LSR6 | 0.175 | 0.017 | 2.675 | 102.8846 |

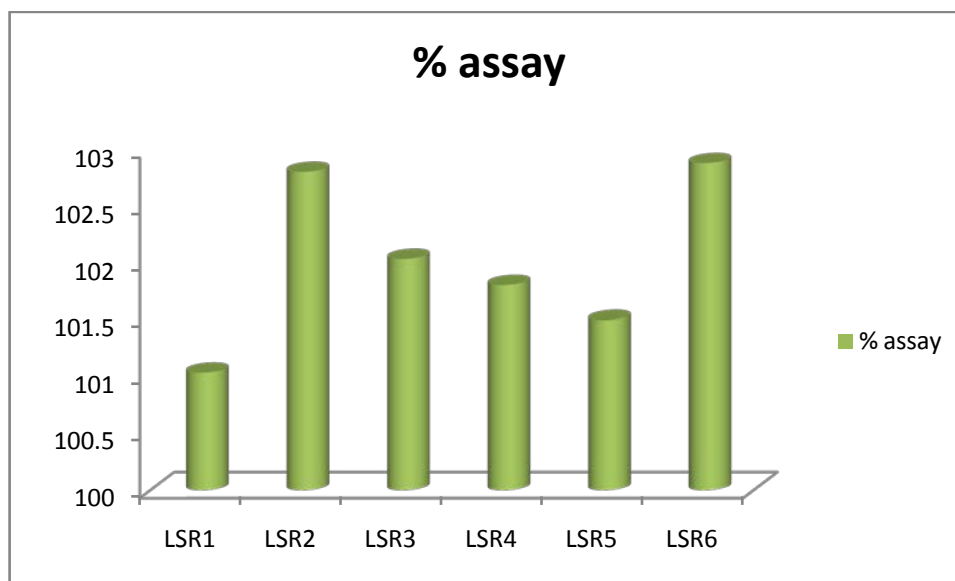


Figure 2 : % assay of different brands

IV. CONCLUSION

A simple, rapid, and economical UV method has been established for determination of losartan alone or in their formulations. This method has several advantages, including simple sample preparation and rapid analysis. It is suitable for analysis of antihypertensive agent losartan in their formulations in a single run, in contrast with previous published methods. This makes the method suitable for routine analysis in QC quality-control laboratories.

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